

ARTIFICIAL STONE. INSTITUTION OF CIVIL ENGINEERS.

At a meeting of the institution on the 1st instant, Mr. Joshua Field, the new president, took the chair, and congratulating himself as being the first president elected from among the mechanical engineers, delivered a very interesting address, which the meeting requested might be printed.

The discussion was then resumed upon a paper recently read on the manufacture of artificial stone; the Dean of Westminster, Sir Henry De la Beche, Mr. Barry, and other visitors, taking part in it, with the principal members of the institution.

The remarks turned chiefly upon the chemical and physical properties of the material, and the cost of its production in the moulded form as compared with that of carved stone. In its chemical properties it was asserted to be at least equal in purity to the productions of nature, for on the statements of the eminent chemists who had subjected it to severe tests, it was said to be totally insoluble in boiling water, however long immersed, and also to be capable of resisting the action of mineral acids. In this respect it differed from glass, which always yielded a portion of its alkali to the action of water. It was further stated, that it had perfectly resisted the action of frost, vases filled with water having been repeatedly frozen without their sustaining any injury. Statements were adduced as to its strength, and other physical properties, and some very interesting remarks were made on the subject, comparing the substance produced artificially with certain sandstones found in this country, which, by the action of compression and heat, had attained a degree of hardness equal to quartz. It was said that experiments made on the strength of the artificial stone proved it to be superior to those natural stones with which it had been tested, viz., Caen, Bath, York, or Portland stone; but of these we should require to know more before expressing our opinion. The price of the material was stated to be such as to render it available for all useful and ornamental purposes.

New Books.

A Practical Treatise on Ventilation. By MORRILL WYMAN. John Chapman, Strand; Munroe and Dennett, Boston.

"Plures occidit aer quam gladius," says Mr. Wyman truly on his title-page, as we have said again and again for years, with many earnest fellow-labourers; and, gathered facts having every where confirmed it, a respectable minority of the community are fully satisfied that the air we breathe does kill more than the sword, and are anxiously looking for the means of obtaining it in our houses, schools, churches, and meeting-halls, in a purer state, and in more abundant quantity than it has been heretofore found. The book before us will help them in the important search, shewing the principles of ventilation that are established, and offering many suggestions towards the desired end worthy of consideration. In America Mr. Wyman's treatise is well known, and we have before now quoted portions of it: we think it due to the work, however, to aid in further extending a knowledge of the treatise in England by a distinct recommendation of it to our readers.

In respect of public buildings, our author justly points out that it is as important the plan for warming and ventilating should be determined upon before the construction is commenced, as for lighting and entrances.

"Architects seem entirely to forget that any such arrangements beyond an ordinary fireplace, are required. It is but a short time since an advertisement appeared for proposals for warming and ventilating the new Custom-house at Boston, not only after the plans were adopted, but after the building was completed. Any plan which can be devised for such a building, and which can be introduced without any considerable expense, must be far from satisfactory in its operation. The architect should design and build not only with regard to beauty and convenience, but to health and comfort also. This he cannot do unless he possesses a clear conception from the beginning

of the means by which these several objects are to be accomplished."

Those who question the importance of ventilation because our forefathers lived to a good old age without even understanding the meaning of the term, he bids call to mind their fire-places, the kind of houses they occupied, and the quantity of air which must have passed through them. "In some of the old houses in New England the chimneys are still standing, having fireplaces 8 feet in length by 3 feet deep, and a height to the mantel of nearly 4 feet. With these chimneys the draught occasioned by the large quantity of wood consumed was such that, without the *settle* to protect the back from the strong current of cold air pouring in at the doors and windows, and retain the radiant heat, it was impossible to keep comfortably warm.

From these large, open-throated chimneys there has been a gradual diminution, until the space for the escape of smoke, as now formed for anthracite coal grates, is seldom more than 12 or 14 inches long by 3 inches wide. By these improvements the escape of heat by the chimney has been constantly diminishing, and the amount of radiant heat, which in such fireplaces is mainly depended upon for warming, remains as great, if it is not increased; but the ventilation has been greatly diminished."

Mr. Wyman's work contains a large amount of information, conveyed in a clear and intelligible manner.

An Essay on the Air-pump and Atmospheric Railway. By W. TURNBULL Williams and Co., Strand.

THERE are some men who work all their lives to make the reputation of others, and, from circumstances which we will not venture to examine (in many cases, doubtless, their own fault), derive little personal advantage or advancement from their labours. William Turnbull appears to be one of these: he is known by a "Treatise on the Strength of Cast-iron," and some other minor productions; but the greater part of his life has been spent in mathematical investigations, which pass current as the work of others.

The object of the little book before us, just now published in his own name, is the investigation of the principles of the air-pump, and their application to the propulsion of trains on a railway, suggested, it would seem, by Mr. Robert Stephenson's report on the atmospheric system. It gives formulae and rules for calculating the various quantities contained in that report, and, shewing some trifling errors in Mr. Stephenson's figures, which tell against the system, takes a more favourable view of it, and claims for it impartial and patient investigation. The writer describes the improvements made by Clarke and Varley, and speaks favourably of the result. We recommend the work to the attention of those who are interested in the question of propulsion on railways.

Correspondence.

SELF-ACTING EFFLUVIA TRAP.

SIR,—The statement of Mr. Rattie in your last number, under this head, is so grossly false and calumnious, that I must beg of you at once to give it my most unqualified denial; and as I cannot expect you to find room for particulars, I will not attempt to bandy words with so unscrupulous an opponent. I have, therefore, at some expense, procured an official copy of the drawing and specification of his patent (for "Artificial Fuel") on which he founds his claim, which I have placed in my office at No. 26, Lombard-street, with all the correspondence and particulars relating to the subject, for the inspection of any person who may feel sufficiently interested in the matter. The trap in question is neither the invention of Mr. Newman nor Mr. Rattie, but was patented by a Mr. Hawkins in 1821, and has been in use by him and his successor, Mr. R. Wiss, of Charing Cross, ever since.—I am, Sir, &c.,

J. BENNETT.

•• We have, on strong representations, yielded our determination to admit no further letters on this subject in favour of the above, but will not again depart from it.

Miscellaneous.

MASONS' PROVIDENT INSTITUTION.—The second annual meeting of the above excellent institution was held on Tuesday evening, February 1st, at the City of Westminster Mechanics' Institution, Mr. Wm. Haysoun in the chair, for the purpose of receiving the committee and auditors' report for the past year, which left a balance in the hands of the treasurer (Mr. Wm. Freeman) of 209l. 17s. 5d., including handsome donations from Mr. John Foot, Messrs. H. and J. Lee, Sir De Lacy Evans, M.P., and others. Thanks having been voted to the late direction, a committee of twenty-five was appointed for the ensuing year, with instructions to take into consideration the propriety of announcing an election for one or more candidates for aid from the funds at the next half-yearly meeting.

PROVINCIAL.—The Priory Church Committee at Christchurch have authorised Mr. Ferrey to obtain a tender for the restoration of the stone road-screen, &c.; also for its removal, objections to which were stated by Mr. Ferrey. —A large conical chimney at Ravenhead Flint Glassworks has fallen.—Preparations are being made at Manchester Cathedral for the bishop's installation.—The works at Grimsby new docks are so far advanced that the water will be shut out over an extent of 1½ miles in length by the end of March.—The Hull Railway Dock has been finished for 55,159l. odd, in place of 60,397l., the engineer's estimate. The Victoria Docks have made considerable progress during the past year.—On Friday, last week, the foundation stone of the Sunderland Docks was laid with great *éclat*. Mr. Murray is the engineer, and Mr. Craven the contractor.—The Gateshead Town Improvement Committee of the Council have memorialised the Woods and Forests for a repeal of the duty on bricks used in draining towns.—Plans for the new Corn-market at Edinburgh have been prepared by Mr. Cousin. The council there have had a discussion on the propriety of letting Nelson's Monument at a lower rent than usual, to a tenant who wishes to "give the public the command of the western heavens, as he intended for that purpose erecting astronomical instruments in the monument."

WESLEYAN CHAPEL, EAST-INDIA-ROAD.—On Monday, the 7th inst., the Building Committee, with the architect, Mr. Wilson, and Messrs. R. and E. Curtis, the builders, met for the purpose of testing one of the framed principals of the roof of this chapel, by hydraulic pressure. The bolts of the truss, at the suggestion of one of the Committee, having been galvanized, which was not intended by the original specification, while driving some of them during the frosty weather, six or eight of the heads broke off like cast-iron, and Messrs. Curtis refused to take upon themselves the responsibility, fearing that the process had had the effect of injuring the ductile properties of the iron. A correspondent informs us that the principals and iron withstood the test of nearly 20 tons in the centre, with a deflection of less than half of an inch, the span of the principals being 50 feet, thereby satisfying those who were present of the strength of them, and that galvanizing does not injure wrought iron.

GLASS TRADE. — DISOBEDIENCE.—A workman lately brought before the Handsworth petty sessions for wilful disobedience of orders, and consequent damage to the extent of 5l., was found liable to imprisonment with hard labour, for three months, though under the circumstance of his agreement with his employers, the abatement of 13s. 10d. alleged wages due, and the payment of costs, was deemed sufficient as a caution.

BUILDERS' BENEVOLENT INSTITUTION.—A meeting of the committee of the above institution was held on Monday last, at the Freemasons' Tavern, when the secretary read a very favourable report as to the progress of the subscription list, and a letter, accompanied with a design for an asylum, was sent in by Mr. J. E. Ebbs, architect. The committee, with thanks, regretted that, until they were furnished with a very large addition to the building fund, they were not in a position to entertain any proposal for the erection of an asylum.